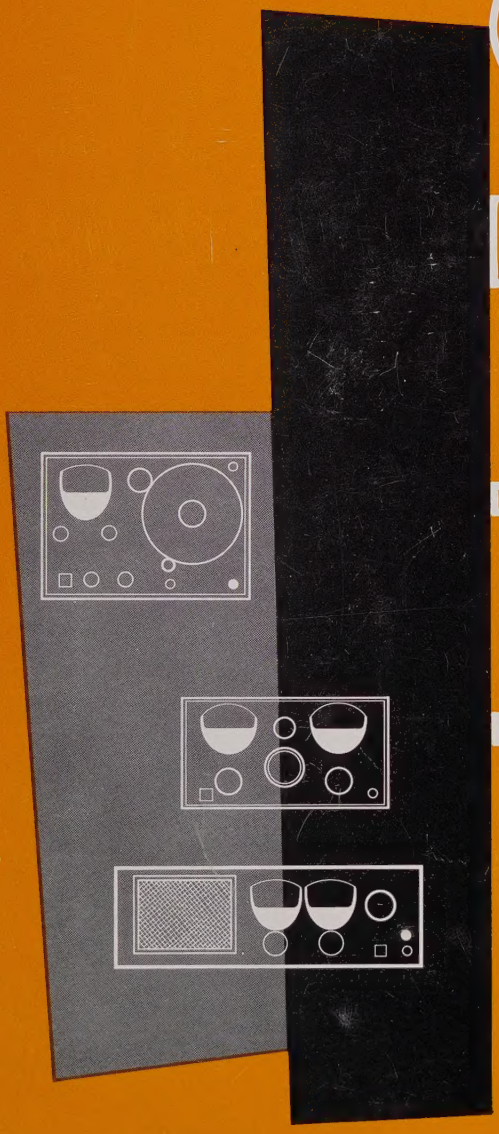
INSTRUCTION MANUAL

MODELS 102, 103, 105

REGULATED POWER SUPPLIES

FOR SERIAL # 573



QTL

- REGULATED POWER SUPPLIES
- ELECTRONIC INSTRUMENTS

Quan-Tech

LABORATORIES INC.

BOONTON, N. J.

INSTRUCTION MANUAL

MODELS 102, 103, 105

REGULATED POWER SUPPLIES

FOR SERIAL # 573

QUAN-TECH LABORATORIES

60 PARSIPPANY BLVD. BOONTON, NEW JERSEY

TELEPHONE DE 4-8500

REGULATED POWER SUPPLIES

MODELS 102, 103, 105

GENERAL

The Quan-Tech Regulated Power Supplies, Models 102, 103 and 105 are low voltage DC power supplies for use with transistors or in other applications requiring closely regulated DC voltage with low ripple content. The physical appearance, wattage output, and general circuitry is the same for all three models.

SPECIFICATIONS

Output:	Model 102 .25-14 volts DC, 0-1 amp. Model 103 .25-30 volts DC, 0-½ amp. Model 105 .25-50 volts DC, 0-¼ amp.

The following specifications are common to the three models. (Unless otherwise stated.)

Regulation:	±0.1% or ±10 millivolts (whichever is greater) for 105 - 125 volts line supply or zero to full load.
Ripple:	Less than 1 millivolt RMS, (2 millivolts RMS on Model 105.)
Internal Impedance:	Less than 0.1 ohms, DC to 10 KC.
Overload Protection:	An electronic circuit automatically limits the maximum load current under short-circuit or overload conditions. Fuses also are provided for protection against sustained overload or component failures.
Power Input:	105 - 125 volts, 50-60 cycles, 35 watts.
Dimensions:	Height 8¼", Width 5", Depth 7 3/4" overall.
Weight:	7½ lbs.

OPERATION

1. Place the Power Supply so that it has ventilation at the sides and back. Although the instrument will operate normally in ambient temperatures up to 40°C.(104°F.) it should, preferably, not be placed on top of other equipment that liberates a large amount of heat.

2. Plug the power cord into a source of 105-125 volts, 50-60 cycle, AC power.

3. Turn power switch to ON and advance the control knob fully clockwise. The red QTL emblem should glow and the meter should read slightly over full scale. (In Models 103 and 105 a slight click will be heard as the control knob reaches mid-range, at this point the main rectifier switches from mid-tap to bridge operation.)

4. Momentarily short-circuit the output terminals. The voltmeter reading should drop to zero and return to normal as soon as the short is removed.

MAINTENANCE AND REPAIR

1. Quan-Tech Power Supplies, Models 102, 103 and 105, require no routine maintenance. They should be removed from their cases only if repair is required.

2. The components in these instruments are standard commercial units. Replacement parts can be obtained from Quan-Tech Laboratories. They probably are also available at your local supplier.

3. To take off the case, place the instrument face down on the bench and remove the four screws on the back sub-panel.

4. To re-assemble the instrument in the case, it is convenient to place the instrument panel face down on small blocks. Be sure that the connecting cable is not obstructed.

5. In replacing components on the printed circuit board, the iron should be only hot enough to make a clean solder connection. Avoid pressure that might push the copper away from the board while hot.

CIRCUITRY

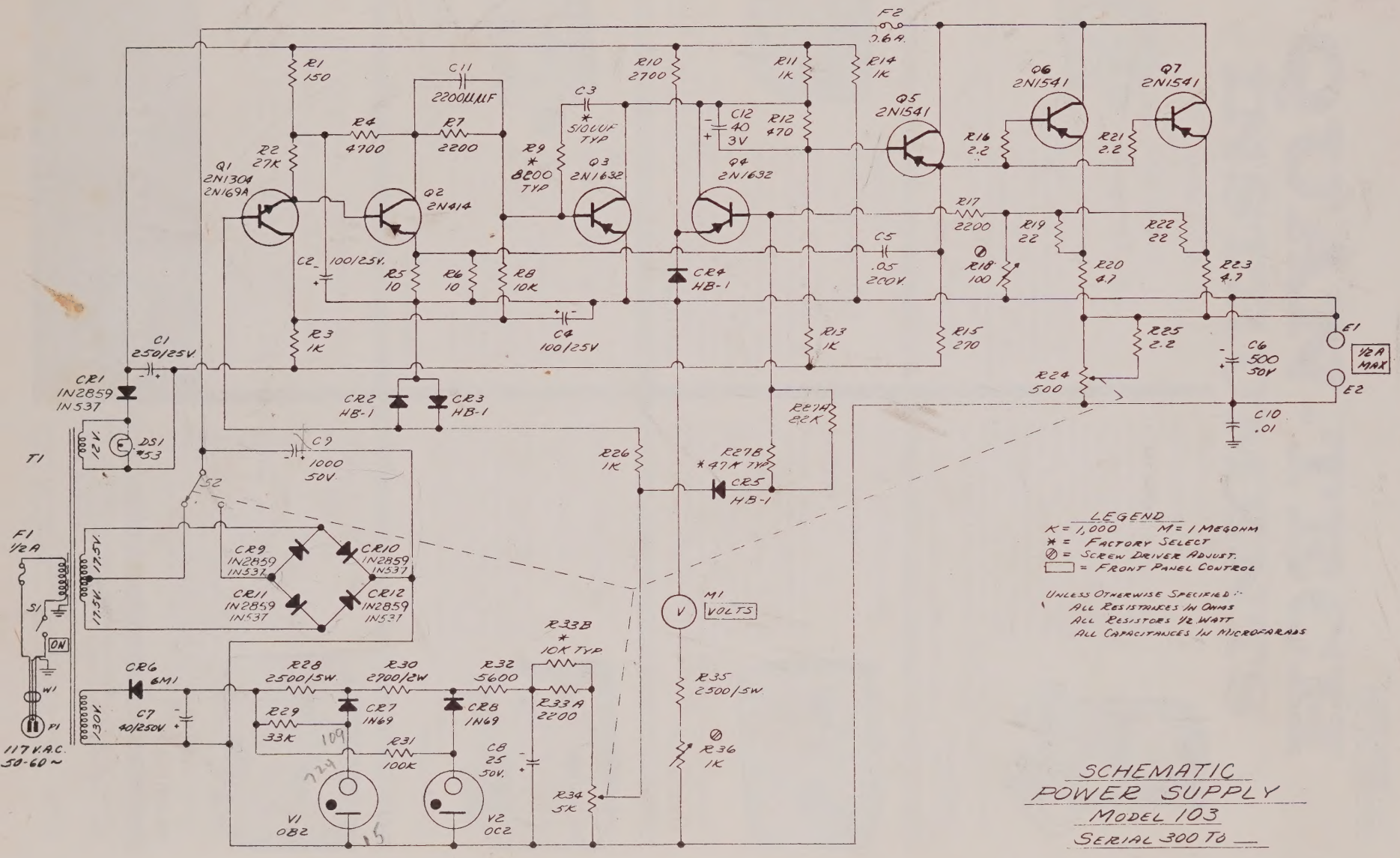
The Power Supply circuit comprises:

1. A main silicon rectifier.
2. A four-stage transistor regulator with an associated floating rectifier.
3. A gas-discharge reference with its rectifier.
4. An electronic circuit that limits the maximum output current to approximately 1.2 times the normal maximum value.

Complete overall degeneration of the regulator circuit provides close regulation of the output voltage and extremely low internal impedance to approximately 10 KC. Due to the frequency cut-off characteristics of the power transistors and the internal inductance of the wiring and components, the internal impedance rises from less than 0.1 ohm at 10 KC to a few ohms at 500 KC.

Fuses are provided in the transformer primary and in the collectors of the final transistors in the event of component failure. Under short-circuit conditions, the output current will drop to a value less than the normal maximum value.

Model	Collector Fuse	Line Fuse
102	1 amp. slow blow	½ amp. slow blow
103	½ amp. slow blow	½ amp. slow blow
105	¼ amp. slow blow	½ amp. slow blow



SCHEMATIC POWER SUPPLY MODEL 103 SERIAL 300 TO ___

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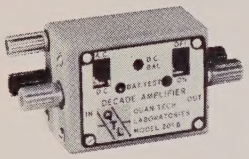
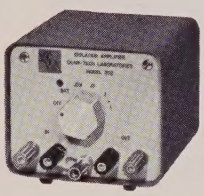
QUAN-TECH INSTRUMENTS



Model 201-B DC-Coupled Decade Amplifier

Highly compact and fully self-contained, the Model 201-B is a stable ac and dc amplifier providing a controlled gain of 10 over a frequency range of dc to 1 MC (±0.5db). Built in battery-condition test indicator. Two or more Model 201-B's may be plugged together in series for greater gain.

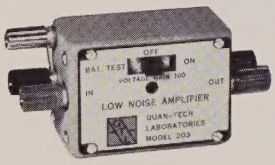
Price: $95.00



Model 202 Isolation Amplifier

Provides dc and capacitive isolation between input and output ter minal pairs. When used with voltmeter, oscilloscopes etc., permits accurate, safe, off-ground measurements. Frequency response: 30 cps to 100 kc (±0.5db). Voltage gain, 1, 0.1, 0.01, 0.001. Battery operated; fully self-contained. Built-in battery condition indicator. Input-to-output effective capacitance, less than 4 mmf. In-phase signal rejection 5000/1 at 100 kc and 10k ohm generator.

Price: $155.00



Model 203 Low-Noise Amplifier

Compact, very low-noise ac amplifier with controlled gain of 100. Frequency response flat from 30 cps to 100 kc (±0.5db); down 3 db at 500 kc. Equiv. noise, full bandwidth, 5 μv RMS, input shorted. Narrow band noise approx. 0.005 μv/cycle above 1 kc. Battery operated; fully self-contained; built in battery condition indicator.

Accessory Adaptor plugs:—See Model 201-B above.

Price: $125.00

Model 317 Amplitude Distribution Analyzer —

Establishes the amplitude-probability distribution of a random signal; for example, to determine threshold requirements, false alarm probabilities, etc. Frequency range: 5 cps to 0.5 mc; Amplitude ranges: 100%, 10% and 1% full scale accuracy. Output to drive counter at front panel. Size 8½"(h) x 5" (w) x 6¾"(d).

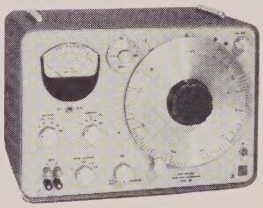
Price: will advise

Model 301 AC Microammeter

Highly versatile ac current meter providing low input impedance, very high sensitivity, and isolation from ground for low-level current measurements without disturbing circuit under test. Signal output permits display of current waveforms on oscilloscope. Ideal for transistor or magnetic circuit analysis. Sensitivity: With insertion probe, 3 ua to 100 ma full scale; with clamp-on probe, 300 ua to 100 ma, full scale. With 10-amp clamp-on probe (supplied separately) 300 ua to 10 amps.

Price: $290.00

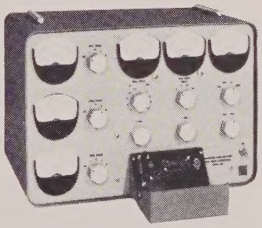
Accessory 10-amp clamp-on probe and connector. **Price: $ 65.00**



Model 303 Wave and Noise Spectrum Analyzer

Designed especially for use in ultrasonics and noise spectrum analysis. Selection of four constant bandwidths; i.e., 10 and 30 cycles (round top), 100 cps and 1 kc (flat top). Frequency range 30 cps to 100 kc, ±300 cps vernier. Sensitivity: 100 μv to 300 v full scale. Analog outputs provided for external monitoring. Sensitivity of 1 μv full scale with Quan-Tech Model 203 amplifier.

Price: $1300.00



Model 310 Transistor Noise Analyzer

Provides simultaneous analysis of transistor noise at three frequencies. System automatically corrects for variations in transistor gain. Beta, Icbo and Iebo are also included—providing measurements of essential transistor characteristics in one instrument.

Price: $1800.00

Model 315 Resistor Noise Test Set

For precise, quantitative measurement of noise generated as a result of current passing through a resistor. Tests any resistor from 100 ohms to 22 megohms; conforms to recommended specifications of National Bureau of Standards for resistor noise measurements. Tests diodes and other two-terminal networks as well. Outputs provided for external monitoring or for data processing.

Price: $1550.00

Quan-Tech
LABORATORIES, INC.
BOONTON, NEW JERSEY
Phone: (Code 201) DEerfield 4-8500

We welcome requests for information regarding specific applications of Quan-Tech instruments, amplifiers and other products.

Prices and specifications are subject to change without notice. Prices noted are f.o.b. Boonton, N.J., USA.

QUAN-TECH POWER SUPPLIES

Transistorized Power Supplies

A series of compact, lightweight power supplies featuring high regulation and voltage metering. The Model 104B (shown) also includes current metering. Regulation for models 101 and 105, 0.25%; the remaining models, 0.1% regulation. Electronic overload and short-circuit protection.

Model 101	0- 8 VDC, 0-2 amps	Price: $175.00
Model 102	0-14 VDC, 0-1 amp	Price: 165.00
Model 103	0-30 VDC, 0-½ amp	Price: 165.00
Model 104B	0-50 VDC, 0-1 amp	Price: 365.00
Model 105	0-50 VDC, 0-¼ amp	Price: 185.00
Model 108	0-32 VDC, 0-½ amp	Price: will advise

100 SERIES

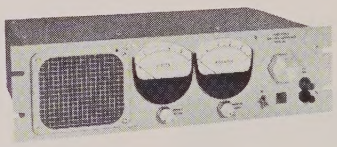
Model 104B

Precision Power Supplies

The 120 Series of precision, solid-state power supplies is characterized by 0.01% regulation. Ripple is less than 500 μvolts, rms. Outstanding features are output voltage and current metering, overload and short circuit protection circuitry, preadjustment of current levels, and remote error sensing.

Model 121	0.1-15 VDC, 0-5 amps	Price: $435.00
Model 122	0.1-36 VDC, 0-3 amps	Price: 445.00
Model 123	0.1-50 VDC, 0-2 amps	Price: 460.00
Model 124	0.1-50 VDC, 0-5 amps	Price: 560.00

120 SERIES



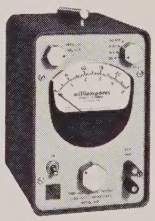
Model 124

Constant Current Supply

Provides constant output current variable over a wide range, independent of voltage across the load. Ideal for transistor or diode testing, potentiometer noise measurements, strain gage applications, etc.

Price: $290.00

OUTPUT: 0.5 to 500 ma. DC in three ranges: 0.5 to 5 ma; 5 to 50 ma; and 50 to 500 ma. Maximum output 20 volts.
POWER INPUT. 105-125 volts, 50-60 cycles, 35 watts.



MODEL 151B

Modular Power Supplies

The 170 Series are extremely compact, solid-state power supplies offering excellent operating characteristics *at unusually low cost.* All models are available in 3 configurations: Suffix B for bench use, Suffix C with all connections through octal plug, and Suffix T with terminal strip. All models regulated to less than 3 millivolts, line or load. Ripple is less than 250 μvolts, rms.

Model	Output Voltage	Output Current	Dimensions	Price
170	10-32	0.25a	3"(h)x4"(w)x5"(d)	$ 98.00
171	10-32	0.50a	3.5"(h)x5"(w)x5.5"(d)	123.00
172	0-32	0.20a	3"(h)x4"(w)x5"(d)	105.00
173	0-32	0.40a	3.5"(h)x5"(w)x5.5"(d)	129.00

170 SERIES

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Phone: (Code 201) DEerfield 4-8500

In addition to the above standard units, Quan-Tech Laboratories produces custom-designed power supplies for specialized applications. We invite the opportunity to offer consultation on your special power supply problems. Address inquiries to the Power Supply Division, at the address below.

The Instrument Division of Quan-Tech Laboratories produces equipment for the measurement and analysis of component and system noise, as well as specialized amplifiers for instrumentation. For details, see section 2900.

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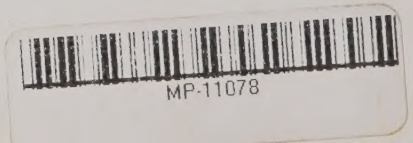
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